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RESEARCHES IN KARIA.*

By W. R. PATON and J. L. MYRES.

THE following notes summarize the geographical results of a series of short journeys made by Mr. W. R. Paton in 1893, partly at his own expense and partly by the aid of grants from the Royal Geographical and Hellenic Societies. Mr. Paton was accompanied in the peninsula of Myndos by Mr. J. L. Myres, Craven Travelling Fellow and Burdett-Coutts Scholar of the University of Oxford, with whom the whole material has been worked up conjointly.

The inscriptions copied during these journeys, a detailed discussion of the ancient sites, and an essay on the types of tombs in this part of Karia, will be published in the *Journal of Hellenic Studies*, vol. xvi. pp. 188 ff., and Mr. Myres' geological observations elsewhere.†

The area covered by these journeys includes the coast of Karia from the mouth of the Mæander southward to the peninsula of Knidos, and the interior as far as the upper waters of the Mæander, and the longitude of the head of the gulf of Keramos. Most of the well-known sites have been visited; but the main purpose of the exploration was to reach outlying districts, to determine ancient lines of communication, and to verify the physical features and general topography by a more detailed survey than is embodied in Kiepert's large map. The peninsula of Myndos, which is full of early remains, was mapped on a larger and more elaborate scale, the results of which, with the sketch-map of the remainder of the district, are appended.

This essay should be taken in close connection with the independent work of MM. Hula and Szanto, since published in *Bericht d. K. Academie* (Wien, 1894), and with Tchihatcheff's paper in *Petermann, Mitth. Ergänzungsheft*, No. 20.

I.—FROM KERAMOS TO MARSYAS VALLEY—KARTEL DERE—
MUGHLA—CHINA CHAI.

The long valley which reaches the sea at Keramos is called the Kartal Dere ("Vulture valley"). Only the lower part of it is indicated in the Admiralty charts and in Kiepert's maps; and in the latter the whole topography of its upper part is mistaken.

Immediately above Keramos, the stream—which is dry in summer, but is provided with wide water-gates in the town walls—passes a short narrow defile between spurs of the Kiran Dagħ and the southward extension of the Marishal Dagħ; above which the valley expands for a little, still trending northward, with side valleys on the eastern side spanned by the Roman aqueduct of Keramos. A few miles further

* Paper read at the Royal Geographical Society, May 13, 1895. Map, p. 120.

† Cf. 'Brit. Ass. Report' (Nottingham), 1893, p. 746; and *Jour. of Oxf. Jun. Scientific Club*, vol. ii. No. 33.

up the valley bends sharply east, and contracts into a long narrow gorge, which turns the south-east flank of the Marishal Dagħ, and subdivides into a number of habitable head-streams. Of these the most easterly is the longest, rising south of Yerkessen, between Pisí and the peak of Sakar Kaya.

The Kartal Dere basin is therefore contiguous with the basin of Yenijé to the east, with that of Pisí to the north-east, and with the head-waters of the China Chai to the north. The great gorge is impassable, and communication between Keramos and the neighbourhood of Mughla is maintained either along the northern slopes of the Kiran Dagħ, or by a path over the Marishal Dagħ from Chivelik to Yonaluk, and thence by Pirnari to Keramos. The existence of the latter route is determined by inquiry at Mughla. There is indeed a path from Baghyaka, down the upper part of the valley, and up the cliffs to Sarij village, but it is not practicable for beasts, and for men only with ladders of notched pine-trunks. The country between this valley and the northern face of Kiran Dagħ is a magnificent pine forest, feebly exploited by Greeks from Mughla and Mylasa. An ancient road over the Marishal Dagħ from Stratonikeia to Keramos is reported by a Greek deacon of Yasghirlar, the Christian village below Penjik, an indefatigable explorer. It went by Panamara, up the valley of Kanevas, to the head of the Kai Dere, and hence across the Marishal Dagħ to Pirnari and Keramos. This remains to be verified.

The alternative road on the south side of the Kartal Dere is marked by a series of ancient sites. There are small forts at Sarij, Baghyaka, Kiuchik Pelen, and Yerkessen, a Rhodian (?) city site at Sarij (2200 feet), and a small unwallèd settlement or sanctuary, with a gigantic plane tree, between Sarij and Deniz Ovasi.

A natural marvel is pointed out at Kiuchik Pelen: a spring from which there is a strong escape of an odourless gas (probably carbonic acid, J.L.M.). The water is said by the natives to be instantly fatal to all animals that drink it except jackals.

The comparatively gentle slope eastwards from the head-waters of the Kartal Dere towards Yerkessen leads to a series of plateaux, the waters of which find their way to the sea by underground channels. The plains of Pisí and Mughla, and other smaller ones in this neighbourhood are completely encircled by mountains like the upland plains of Arcadia and Crete, while numberless springs come out under the Kiran Dagħ along the coast between Keramos and Jiova.* We might well some day happen upon traces hereabouts of a hydra legend like that of Lerna.

The plain of Mughla in Kiepert's most recent map is wrongly shaped, but rightly in his earlier ones. At Mughla itself he does not mark the Hellenic fortress on the flat-topped hill above the town. Its

* Usually written *Giova*.

wall is fairly well preserved on the east side; the other sides are precipitous, and perhaps were never artificially protected.

The basin of Pisi (the ancient Pisyë) and the two ancient sites it contains have been explored by the Austrian expedition of 1891.*

The hills which surround these "kettles" are devoid of trees, and it is only beyond the high range east of Mughla that the pine forests begin again. The reason of this striking distribution of them is probably geological; for at Yerkessen, and several other places on these hills, the ordinary limestone is replaced by marble. This is clearly to be connected with the fact that we are here again approaching the axis of the Latmian anticlinal; and, in fact, the Latmian gneiss reappears in the China Chai basin, and reproduces all the physical characteristics of the Besh-Parmak range (p. 51, below).

The China Chai is the southernmost head-water of the Marsyas, which reaches the Mæander opposite Tralles. Like the Kartal Dere, it has a more or less open upper basin, converging upon a long, narrow, and unprofitable main valley, which runs nearly due north to its junction with the Mesevli Chai, which comes in from the east at Inje Kemer. All this is in the gneiss country already mentioned; there is a small fort between Kafejá and Karakoyun, and three small sites, at Boz-Armud, Elekji, and Almajik, along the modern road which follows the east slopes of the China Chai valley. At Inje Kemer ("thin bridge") is a fine Roman bridge across the China Chai; it formerly supported an aqueduct, but now carries a difficult and unfrequented road from Arab-Hissar (Alabanda) up the Mesevli Chai. After this, the valley expands, and Alabanda lies a few miles below the junction.

II.—KERAMOS TO BUDRUM.

The next valley west of Keramos and the mouth of the Kartal Dere drains the west slopes of the Marishal Dagħ, and the east slopes of the Kara Dagħ, and the hills over Vasiliká. The number and volume of the springs in it above Dere-Keui, which unite to turn a number of mills, indicate a large subterranean drainage system in the unexplored Marishal Dagħ. Kiepert gives the name of Kara Dagħ to the Monastir Dagħ, and has missed the real Kara Dagħ, a much loftier, and from all sides more conspicuous peak, which forms the watershed between the valley of Dere-Keui, just described, and the south-east head-waters of the Sari Chai, and is the east end of the continuous line of hills between the Sari Chai and Kar-Ova basin and the Ceramic gulf. The Dere-Keui valley is the natural line of communication between Keramos and Mylasa *viá* Karajá Hissar (Pedasa); the old road seems to have skirted its head-waters over the spurs of the Marishal Dagħ.

At Ishek Dere there is a pre-Hellenic fortress, and another on a high peak south-east of it.

* See 'Benndorf Anzeiger der hist. Klass des Universitäts,' No. xvii.: Vienna, 1892.

The pass between Ishek Dere and Yenikeui is only some 700 feet high, and is perhaps worth noting as being the obvious line for any future high-road, or even railway, from the lower Mæander valley *via* Mylasa into South Karia and Lykia.

A little below Yenikeui, the streams from the Marishal and Kara Dagħ form a perennial stream, rapid and full of fish (the Ak-Chai of MM. Hula and Szanto *), which drains the north slope of the Marishal Dagħ and Kartal Dagħ, and the south and south-east slope of the Ak Dagħ and Penjik Dagħ, and runs up within a few miles of Panamara. Its long, narrow, enclosed valley is called the Kai Dere ("Deer valley"),



SIVRI DAGH, FROM BAGH-YAKA.

a wild, thickly pine-clad glen with a few isolated houses, whose inhabitants fled at the unwelcome sight of strangers and suvaris; hence loss of track and temper, and a night in the open.

Some two miles below the confluence with the Ak-Chai on the (south) left bank, and bounded on the west by a small valley northwards through the Kurun Chiflik from Kara Dagħ, lies the important site of Karajá Hissar, first visited by MM. Doublet and Deschamps,† and rightly identified by them with Pedasa. It is a Hellenic fortified town, containing a theatre and other public buildings. The inscription published by MM. Doublet and Deschamps is from a building dedicated to Titus, which contains another fragmentary inscription, published by Messrs.

* 'Bericht,' p. 25.

† *B.C.H.*, vol. xiv. (1890), p. 627.

Hula and Szanto.* A little excavation here would be very easy and profitable. No coins have been found here as yet. Below Karajá Hissar the main valley turns more northwards to skirt the prominent Monastir Dagħ (1700 feet; Kiepert's "Kara Dagħ"), and descends, turning several miles through a narrow gorge westwards again past Alan Bagħche and Yaka-Keui to the confluence of the parallel stream north of it which comes down from the north slopes of the Ak Dagħ past Kalin Aghil and Aghasli Oyuk. There is a small site a little south of the latter place.

On the other side of Monastir Dagħ two valleys originate—(a) the Yemikler Dere runs first west nearly parallel to the valley of Yaka-kioi; then turns south-west to Sirtmesh Kalé: (b) the other runs first south past Bagħajik, draining the west and south slopes of the Monastir Dagħ; then west and north-west past Chokier into the Kar-Ova plain, to meet the main stream running north from the Kaplan Dagħ coast range near Etrim (Theangela), into the gulf of Bargylia. Any road from Pedasa to Theangela must have followed this valley route south of the Monastir Dagħ, and past Kirsalar.

The hills between Yemikler Dere, Bagħajik, and Kar-Ova are crowned by a notable fortress above Cholmekji Keui, and by numerous tumuli, all of which must be taken in connection with the Sirtmesh Kale site on the spur above Uch-Bunar, which is now decisively identified with Kindya. The site of the celebrated temple of Artemis is immediately opposite, across the Yemikler Dere.

The Kiran Dagħ ("Kerenda" of Admiralty Chart), which lines the north shore of the Keramic gulf from Keramos to Jiova, has fewer valleys leading to the sea than Kiepert's map indicates after Tchihatcheff; in particular, the large valley running north-west would cut across the Kartal Dere if it existed as far as it is marked. The seaward slopes are very abrupt, and leave room for no coastland. Between Keramos and Jiova (Idyma) the only harbour is that of Akbuk, where there is a Rhodian watch-tower in fairly good preservation.

The Kara Dagħ and the whole coast range between Keramos and Halikarnassos are still unexplored. Their northern slopes drain into the Karajá Hissar valley and the Kar-Ova plain.

Kiepert places Bargasa at Vasiliká (Fezlikan Yailasi), but there are not at all enough remains there to justify this. Ptolemy's indications, an inscription published by Buresch,† and the fact that its coins are mostly brought down from Aidin, make it probable that it will be found somewhere north of Amyzon and Alabanda.

The limits of the Kar-Ova plain, and the position of its many villages, have not yet been properly defined; Kiepert is inaccurate, and assumes a *village* of Kar-Ova, which does not exist. MM. Hula and Szanto promise a fuller account.‡ The hilly country between the western

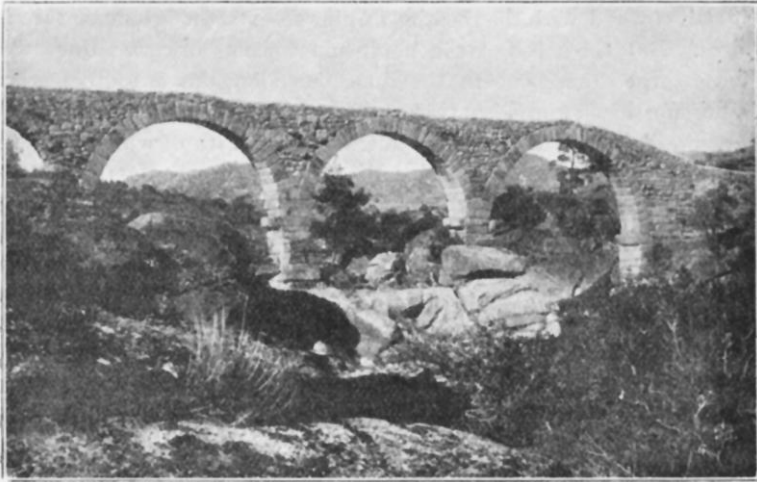
* 'Bericht,' p. 28, n.

† *Mith. Ath.*, vol. xix. p. 102.

‡ 'Bericht,' p. 25.

border of the Kar-Ova and Budrum is of a very porous variety of the limestone, and remarkable for its absolute lack of water. The whole supply is now derived from cisterns. At present there is not a single village in this district, but the numerous apparently pre-Hellenic remains show that it was well populated at a remote period. The southern part of it, as far as the coast, is a large chiflik, now the property of a Greek of Kalymnos, M. Mangli,* drained by a fan-shaped basin from Kizil Aghach to Alezeitin.

In this waterless upland between the Kar-Ova and Budrum, the old road coincides with the modern, keeping close under the conspicuous



INJE KEMER.

range of hills which lines the northern coast, and crossing the heads of the southward basin of M. Mangli's chiflik. The route is indicated by a long series of Karian and Hellenic chambered tombs.

About an hour and a half south of the road, on the south side of the easternmost tributary of the Mangli stream, the unidentified Karian town of Alezeitin still stands as it was left at the incorporation of these districts with Halikarnassos by Maussolos in the fourth century B.C. Walls, houses, and public buildings of rough masonry, often with Cyclopean basements, remain unburied and mainly erect. We found no inscriptions or fine pottery, but a portico with notable proto-Ionic capitals gives a clue to the type of culture which the place enjoyed.

Leaving Kizil Aghach and the Mangli chiflik to the south, ascending the western valley head of the northward stream which debouches at Durvanda, and taking up the old route from Bargylia to Halikarnassos,

* Kiepert's "Evangelii."

the road now crosses an easy pass, where the earlier track is visible, and descends by a series of recent zigzags into the deep river-bed which traverses the Greek quarter of Budrum.

III.—THE PENINSULA OF MYNDOS.

The peninsula of Myndos, on the isthmus of which Halikarnassos stands, differs wholly in its physical features from the adjacent mainland, which has been described above. The thick waterless limestone extends, indeed, some 5 or 6 miles beyond the isthmus, and ends in a fine group of hills, the Kara Dagħ (Oglou Dagħ of Admiralty Chart 1604), with an abrupt escarpment northwards, and very steep slopes on the west still covered with the remains of pine forests, though much thinned by fires. But the mass of the peninsula consists of crystalline rocks, which emerge from beneath the limestone along an anticlinal whose axis lies north-west and south-east between the island of Patmos and the eastward half of the Knidian Chersonese, in both of which areas the same or similar rocks recur. The limestone reappears on the seaward slope of the anticlinal with south-west dip, in the north of Leros, in Kalymnos, and Kos, in the eastward half of the Knidian Chersonese, and in the island of Syme.

This anticlinal is obviously very nearly parallel to that of Latmos, and probably belongs to the same series of earth-movements. Its formation was partly earlier, partly later, than the deposition of the great limestones, and was attended in both periods by very considerable volcanic activity. The fundamental gneiss, which is not unlike that of Latmos, is honeycombed with dykes and masses of intrusive matter of very various character; and the few outliers of limestone which occur are wholly transformed into a white marble not unlike that of Samos.* The whole area is overlaid by thick masses of volcanic *débris*, which in many places are rolled and stratified by marine action, and on the north coast of the peninsula have a decided seaward dip; and, being very readily eroded, give rise to a most characteristic type of scenery, with precipitous escarpments buttressed and embattled in the most fantastic forms. The peninsula may be subdivided as follows: (1) The limestone country north of Halikarnassos is, as above mentioned, simply a continuation of the mainland area. (2) South-east of it is an undulating lowland of volcanic *débris*, drained into deep bays of the gulf of Kos, (*a*) by the stream which flows from Ghiuk Chalar past Bites; (*b*) by the Episcopi river, one tributary of which rises far round the north-east spurs of Kara Dagħ, above Pelen, and the northern watershed of which is within a couple of miles of the bay of Sandamah. (3) The highlands of Termera, or "south range," extend in a series of very bold peaks

* The λίθος λευκός of Mylasa (Strabo, 658) is not marble, but a fine compact limestone like that of Mount Zea in Naxos.

rising to 1300 feet south-eastward from the lower course of the Episcopi river to the extreme point of the peninsula towards Kos. (4) The wide and fertile Akcherenda valley drains the north slope of the south range, and the south slope of (5) the highlands of Myndos, which are intersected by its principal northern tributary, the Dere-Keui stream. These hills attain a height of 1200 feet at B., and of 1700 feet at Q. (*vide* map); with the exception of the fertile plain draining into the harbour of Myndos, they allow of no coastland, until on the north coast (6) the valley of Sandama is reached. This and the adjacent lowland of Tremil are connected by easy passes with the top of the Episcopi valley,



EUREN.

and by a fertile valley eastwards with (7) the valleys of Farelia and Ghiol, which drain the north side of the Kara Dag, beneath the great limestone cliff, and form the ancient territory of Karyanda, while Telmessos held the upland forests and pastures of Kara Dag. The bay which marks the north side of the isthmus receives streams from the very abrupt gorges which come down from Ghiuk Chalar, and also the northward stream already mentioned (p. 43), which comes down from the high-road in the neighbourhood of Kizil Aghach. It will be convenient to follow this series of subdivisions in describing the sites and roads in the peninsula. We have nothing to add to existing accounts of Halikarnassos, except a few inscriptions,* and a note of the probable course of the principal roads thence into the peninsula.

* *J.H.S.*, vol. xvi. Nos. 5 and 6.

1. There are traces of an old track in the deep ravine which leads directly north from the north angle of the old town towards Ghiuk Chalar; from Ghiuk Chalar a road passed northward, accompanied by tumuli, over the eastward ridge of Kara Dagħ, descending past a large Byzantine church into the eastern Ghiol valley, probably joining the Karyanda-Bargyilia road.

2. From the west gate of Halikarnassos, the old road to Myndos follows very closely the line of the modern one. The road to Telmessos followed a wide ravine through the Kara Dagħ, descending upon the Apollo Temple below Telmessos, where there are traces of a well-worn track, and from thence into the Ghiol valley to Karyanda. Further on again, from Episcopi, a cross-road led up the Episcopi valley and down upon Sandama. This road also is very deeply worn in several places near the top of the pass; and another track, with windmills over a pass further east, past the fort at Tremil, to the small towns round the bay, is evidently of great age. The main road to Myndos can again be traced further on, over the watershed at Kiureji, where there is a small fort on the hill M. It is closely followed by the modern track.

3. The course of the direct road from Halikarnassos to Termera (Assarlik) is not clear. That from Myndos to Termera, and to its little port, can be traced near Kadi Kalessi; across the ridge close to the west end of Assarlik, the hollow way is from 10 to 15 feet deep.

4. From Myndos northward a coast road passes a succession of small forts and settlements, including that at Tremil above mentioned, and eventually reaches Karyanda (Farélia), and so joins the Halikarnassos-Bargyilia road at Duvandá.

Termera is certainly at Assarlik, and is so marked in Kiepert's last map,* though the inadequacy of the shading makes it look as if it were clear of the south range. Kiepert formerly followed Newton in putting Termera at Chifut Kalé, where there is one small piece of old wall incorporated in a mediæval castle. The topography is discussed in detail in *J.H.S.*, vol. viii. (W.R.P.), where a description of the necropolis is given, and a drawing of part of the fortress wall. The chambered tombs described by Newton† are in a valley on the north-west of the fortress, and a little to the west of the road.

Myndos itself has been repeatedly described elsewhere, and a drawing of the Cyclopean wall on the peninsula (which as at Knidos seems to have been the original town) is given in *J.H.S.*, vol. viii. (W.R.P.). It has no Lelegian necropolis, and seems to have been, unlike Halikarnassos, a thoroughly Hellenic foundation. Its continuous importance as a silver-working centre is attested alike by classical and mediæval tradition, and by its Turkish name of Giúmushli. The beach round the

* 'Formæ Orbis Antiquæ,' 1894, ix.

† 'Halikarnassos,' etc., p. 215.

bay south of the harbour is strewn with masses of slag from the silver-furnaces, one of which is well exposed in the hollow way to Kadi Kalessi soon after leaving the shore. All that remains is a circular pit some 4 feet in diameter, the sides of which appear to have been lined with clay, and are thoroughly baked into brick. The great silver-mine is to be seen on the range behind the town; the shaft is very irregular and of great size, and is full of water to within 30 feet of the surface. There are still veins of silver lead in this neighbourhood, but "the most copious supply is now near Kephallukha,* where much pyrolusite of very fair quality and a little cobalt have been observed." There is another vein of manganese in the gneiss underlying the white marble outliers above Kadi Kale.

How far north of the town the coast belonged to Myndos, we cannot say with certainty. The next considerable towns are Telmessos and Karyanda (at Kara Dagh and Ghiol respectively).† But there are several small unidentified sites along the intervening coast, and as, for the fifth century at all events, we have a series of unidentified names of this same neighbourhood, it is perhaps worth while to attempt to bring them together.

The names are contained in the tribute lists of the Delian League, which, though their arrangement is generally most irregular, occasionally gives short sections in geographical order; as though the log-book of one or other ἀργυρολόγος ναῦς had been transcribed immediately on its arrival in Athens, and without filling in omissions from other sources. Putting the lists of 454, 450, and 443 B.C. together, we have a continuous itinerary from Bargylia (where the Kindyan tribute is brought down to the sea) to Termera, and beyond Myndos as follows: Kindya, Bargylia, Lepsyandos, Karyanda, Pasanda, Madnasa, Pelea, Myndos, Kalydna (Kalymna, the island), Termera, Halikarnassos. Now, Karyanda is at Ghiol Liman, on the north coast of the peninsula, with "city and harbour and island," as Strabo says.‡ Newton placed it long ago at Ghiol, Kiepert more recently at Táranda. But Táranda was never a considerable town, and, moreover, is wanted for the Taramptos of British Museum Inscriptions, No. 896. Ghiol, on the other hand, has a fine Karian fortified town, with Hellenic additions, on the tuff escarpment above Farélish village, and a considerable necropolis, Karian, Hellenic, and Græco-Roman, extending thence to the bay. We saw also at a house below, near Farélish bay, a small Corinthian capital found in the neighbourhood; and were fortunate enough to acquire a fourth-century bronze coin of autonomous Karyanda, found on the

* Information from Kalymniotes, who were much excited, in 1893, by the discovery. We saw no silver or cobalt *in situ* at Kephallukha; only specimens in the bazar at Kalymnos.—J.L.M.

† *Vide post*, and *J.H.S.*, vol. xiv. pp. 373 ff.

‡ The "island" is "Ag. Apóstola."

western shores of Ghiol bay. We have discussed these verifications of Newton's conjecture in detail in *J.H.S.*, vol. xiv. pp. 373 ff.

In the same paper we described an important group of sites on the Kara Dagħ—two towns, a temple site, and a fine chambered tomb, which we identify with the Karian Telmessos, on the evidence of a third-century inscription found on the temple site, and now built into a house in the village of Pelen. Kiepert had placed this Telmessos at Ghiol. Karyanda then being at Ghiol, Madnasa, Pelea, and Pasanda must be between Ghiol and Giumushli (Myndos). There is a large site with late potsherds and rock tombs on and near the isthmus of Sandama; but if this is Madnasa, Pliny has avoided mentioning its reoccupation after incorporation in Halikarnassos. The alternative site is Borghaz, with a fine pre-Maussolean fort and princely tombs. Pelea perhaps survives in Pelén, in the interior; there are a Karian fort and village here on the precipitous Turkmen Dagħ.* The road hence to the north coast passes Tremíl, with a small settlement and fort cut out of the rocky bogs which crowns the hill south-west of the village. This is probably the Termile which Steph. Byz. confuses with Termera. Pasanda remains to be accounted for. Azajik, a little fort between Gumashli and Borghaz, is too small, and on the wrong side of Madnasa, if the latter is at Borghaz; which suggests the question, is "Sandama" formed by metathesis from "Madnasa," or by accretion from (Pa)-sanda, *quasi ψάνδα*?

IV.—GENERAL DESCRIPTION OF GRION AND LATMOS.

The modern road from Miletos, following doubtless the track of the ancient road to Iasos, touches the shore of the Iasic gulf at a small peninsula called the Ada (island). After passing the low range of hills on which the Greek village of Ak-Keui † lies, it reaches, by a brief, but steep ascent, the northern edge of the plateau which slopes down to the sea south and west of Yéronda (Branchidæ). This plateau is a dreary waste now: it has no villages except the Greek and Turkish Yéronda. There are very few trees, but a thick undergrowth of "schinos" everywhere, except a few clearings in which corn is grown. These clearings lie in depressions which drain into deeply cut river-courses. The largest extends in a westerly direction, and the stream which drains it reaches the sea a little north of Kuvéla.‡ It is called Haikli, from the *Agnus castus* (Turkish "haik") which grows in it (hence Kiepert's village of "Yakli").

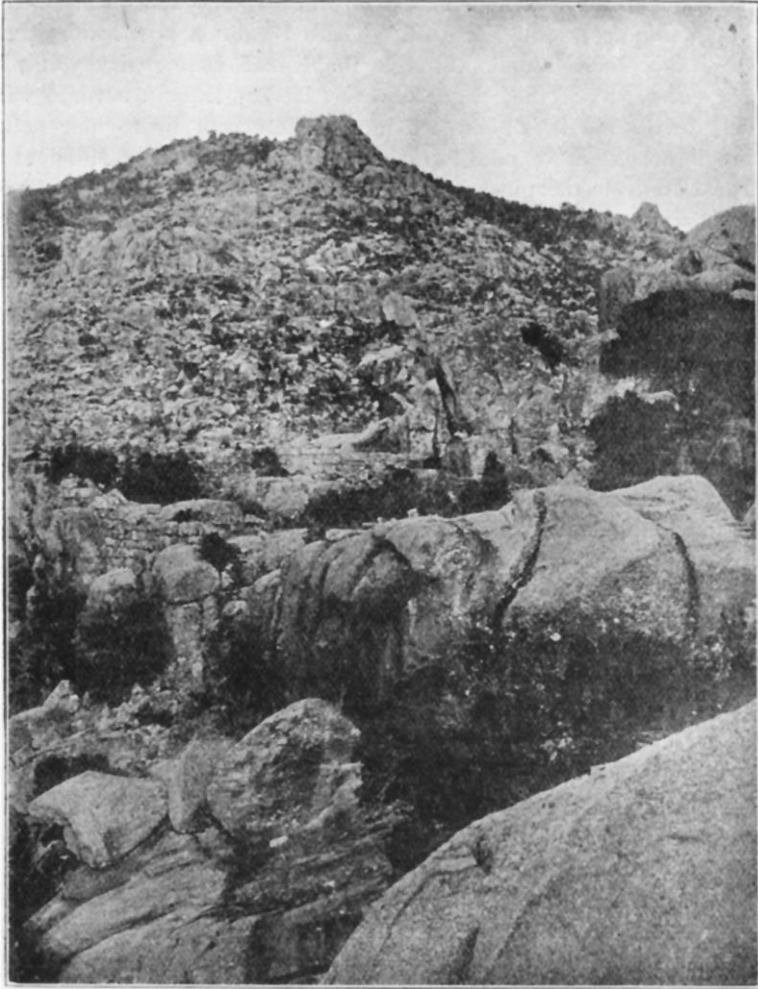
The country was once, however, plentifully wooded with olive trees, of which a few remain; the rest have perished in the frequent fires which the peasants kindle to improve the pasturage. Each of the

* "Pyramid Hill" of Admiralty Chart 1546-1604.

† Akkia, Admiralty Chart 2836.

‡ Kovelio, Admiralty Chart 2836.

isolated farm buildings, which form the only landmarks, has its oil-mill, monolithic, of great size, and of immemorial age. The mass of pottery lying on the surface near these buildings shows that they have maintained their position for centuries, though they are now only used



BAGHAJIK.

as byres (Greek and Turkish "damia"). Tumuli are frequent from Ada to Dere-koyun along the Miletos road, are called "armakádes" (*ἀρμακάδες*), and are explained by the natives as look-out stations for the shepherds. Grion is not quite so impassable as M. Rayet has stated.*

* 'Milet et la Golfe Latmique.'

A fairly good road from Dere-koyun at the head of the valley, running down to Kiepert's Pyrrha, leads *viâ* the Chatal Alan ("plateau of the fork") over the northern spur to a cistern on the shore of the Latmian gulf; a path, regularly traversed by beasts of burden, leads from Mersinet to Akbuk; and the road from Iasos to Yeni-Keui ("new village") and Mandelia is quite an easy one, and is probably the ancient road from Iasos to Chalketor and Euromos. There is also a practicable track from Mandelia to Akbuk through the Kurun Dere ("dry valley"). The greater part of the range, however, is very thickly covered with undergrowth, and it is therefore impassable except by regular paths. There is no extensive pine forest, but in the ascent from Mersinet to Kurun-Dere-Kale the pines became more frequent. At Mersinet itself there is a settlement of the curious Taktaji race, whose one occupation is wood-cutting; the men cut the trees, and the women saw them into planks. On the south side of the range springs are very rare; its northern side is richer in water, but even here there are no perennial streams.

From Mersinet and Bafi to Mandelia the road crosses a low pass about 700 feet, in the depression connecting the Grion and Latmos ranges. This is the only possible route for the railway to Mylasa which will be made some day; it need not ascend as high as the modern road, but at most some 500 feet, for there appears to be a lower, though less direct, pass than that followed by the road.

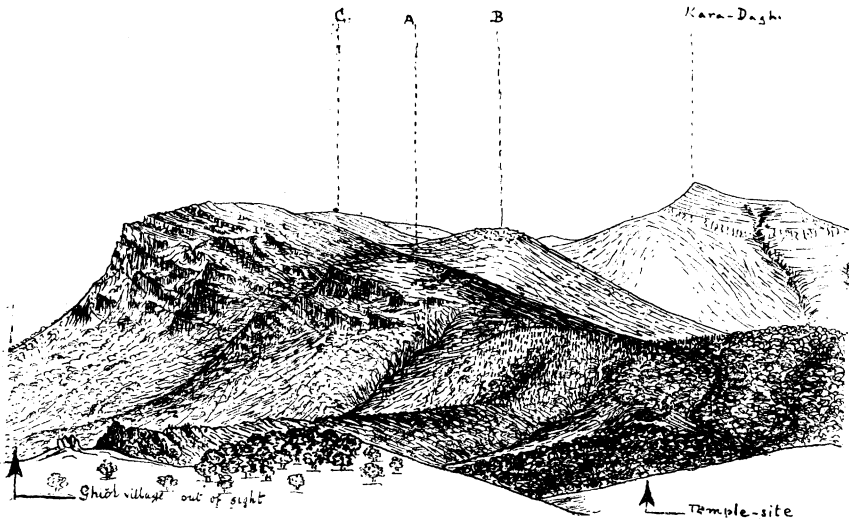
The plain of Mandelia is traversed by a stream which flows into the Sari Chai below Talian, and derives its water chiefly from two valleys, the Derenje Dere and Kandak Dere. At the head of the Derenje Dere lies the village of Sakar-Kaya. Here numerous springs rise above a steep cliff, turn several overshot mills, and water the gardens of the Yailâ or summer quarters of the village. In the upper part also of the Kandak Dere and in Ghiol Dere ("Marsh valley"), one of its tributaries, water enough is supplied to form small perennial streams. Their water disappears or is deflected lower down, so that at Derenje and Mandelia the two rivers appear to be dry torrent-beds; but, as is usual in this country, the water reappears in the plains and forms the considerable stream which skirts the base of Grion and joins the more voluminous Sari Chai ("Yellow river"). The whole of the Latmos range is rich in water, but the only other perennial stream which issues from it is another Sari Chai, which runs in a northerly direction, passes near Amyzon, and joins the Mæander.

The whole range is rich in iron, as the name Demirji Dere ("Iron-smith's valley") and others testify, and it was only ten or fifteen years ago that the actual production of iron ceased. It continued, after it had ceased elsewhere, at Sakar-Kaya, where Chandler noticed the workings.* There the iron ore is still to be seen, quarried and lying in heaps ready

* 'Travels,' p. 199.

to be smelted, and all about the hills there are traces of old workings in the most desolate and unexpected places.

Mount Latmos proper, the Besh-parmak, or "five fingers," which rise straight from the head of the old Latmian gulf above Herakleia, has a remarkable physical character, which is shared by its south-eastern continuation, for the slopes above Herakleia, the upper valleys, and the ridge itself are of the same geological formation. This is a characteristic gneiss, like the fundamental series in the peninsula of Myndos, the large smooth blocks of which are scattered at random over the country, and have provided perches for anchorites, though they are often quite



THE SITE OF TELMESSOS FROM THE N.E. A.B. WALLED TOWNS WITH HOUSE WALLS STANDING. C. CHAMBERED TUMULUS. THE HILLS BEHIND A.B. OVERLOOK GIUK CHALAR.

(Sketch by J. L. M., corrected from a photograph by W. R. P.)

unscaleable. The beehives here are regularly perched on the flat summits of such boulders as have all their sides sloping the wrong way, to repel the assaults of the bears which abound. It is this gneiss which confers their peculiar character upon the fortresses of Euren and Baghajik.* The gneiss extends to the head of the long valley (the Alinda branch of the Marsyas,† which runs down to Dere Keui and turns thence eastward to the Karpuzli-Ova ("Plain of Water-melons"): and the Attaulusu peak is a small reproduction of the summit of Latmos. Tchihatcheff has described this formation as he found it on his route from Karpuzli to Mylasa, and notes it again in the Marsyas valley (China Chai). It exists also higher up the valley than he went.‡ Wherever it exists, it

* J.H.S., vol. xvi. pp. 211, 212.

† Hula and Szanto, 'Bericht,' p. 2. Alinda is almost certainly identified with Demirji-deresi.

‡ Vide above, p. 40.

imposes its character on the tombs and fortresses, as well as on the natural scenery.

The valley running down from Attaulusu to Dere-Keui is labelled "Menteshé" in our map, and Kiepert gives the same name ("Mandidja") to the whole region. The villagers at Chikur ("the hole") say that the valley is called Menteshé, and they point out a site, marked in our map, where an annual market, the Menteshé Bazar, was once held. The name Menteshé is that of the Seljuk conqueror of this district, and is the current name of the whole province of Mughla, just as that of his contemporary Aidin is given primarily to the province of Aidin, and secondarily to the whole vilayet; but there is not in Menteshé, as in Aidin, any town which bears the provincial name; and there are no apparent reasons why it was specially applied to this valley, or rather to the bazar once held in it, and also to the pass under Petsona-Kale,* near Mylasa, which is known as the Menteshé Boghaz. These narrower uses of the name are probably derived from incidents unknown to us in the progress of the conqueror.

The peculiar gneiss formation ceases soon after we leave Chikur for Dere-Keui, and is succeeded by a series of dismal ridges formed by the basement beds of the limestone series. On these grow only a few wild pear-trees, which the natives are usually too lazy to graft. Descending this valley, crossing a low pass into that of the Sari Chai, and returning up it towards Mount Latmos, we find the gneiss beginning again as we ascend. This Sari Chai valley is very sparsely inhabited, Kizil-buluk and Chavdar being its only villages; Baghajik is only a hamlet of four houses, with an early fort and temple site.†

The position of Chavdar in our map is based on W.R.P.'s latest (1896) observation. No authority is given for the route, incorporated in Kiepert's map, with Chavdar and "Kara-kaya." "Kara-kaya" is evidently Sakar-Kaya. There is no village in this region bearing the name of Kara-kaya; the nearest is beyond Besh Parmak; another above Myndos.‡

The limits of all large chifliks should be marked on all detailed maps of Asia Minor, as they probably represent territorial divisions of great antiquity, and often with very little modification. The principal chifliks of this district are three:—

1. Mehmet Bey's chiflik; entered shortly after passing Talian village in going from Mandelia to Tekirambar, where the owner lives.

2. Halil Bey's chiflik; frontier between Tekirambar and Aghasli-oyuk; residence at the latter place.

3. M. Demadi's chiflik; frontier between Aghasli-oyuk and Kalin-Aghil. It extends from Duz-Ova and Paterga, not far from Eski Hissar (Stratonikeia), to the deep Kai Dere described above (p. 41).

* "Petshin Kale," Admiralty Chart 2836.

† *J.H.S.*, vol. xvi. p. 212.

‡ "Garah," Admiralty Chart 1546-1604.

The plain of Mandelia itself is not a chifik.

It will be seen that the indications above are only notes made *en route*; it is difficult to obtain information about landownership, and especially about the boundaries between government land and private property, without official co-operation and elaborate collation of documents. The more one works at it, however, the more one appreciates the importance of this kind of evidence.

W. R. P.—ITINERARY IN GRION AND LATMOS.

1893.	1893.
Sept. 18. To Kazikli.	Oct. 4. Chikur—Dere-keui.
„ 19. Kazikli—Akbuk.	„ 5. Dere-keui—Amyzon—Karkilsar.
„ 20. Akbuk—Karakoyun by sea (<i>Teichiussa</i>).	„ 6. Karkilsar—Sari Chai valley —Baghajik.
„ 21. Karakoyun—Yeronda.	„ 7. Baghajik—Sakar-Kaya.
„ 22. Yeronda—Kuvella—Ak-keui.	„ 8. Sakar-Kaya—Mandelia.
„ 23. Ak-keui—Kamarais—Ak-keui.	9–15. Arrested for travelling alone, and sent to Mylasa; the rest with a zaptieh ordered to prevent map-making.
„ 24. Ak-keui—Dere-koyun.	„ 16. Mylasa—Kara-koyun.
„ 25. Dere-koyun—Island in Denizli Liman.	„ 17. Kara-koyun—Yeni-keui.
„ 26. Island—Herakleia—Mersinet Yaila.	„ 18. Yeni-keui—Alan-bakche.
„ 27. Mersinet Yaila—Kale.	„ 19. Alan-bakche—Dede (Monastir Dagħ).
„ 28. Kale—Mandelia.	„ 20. Monastir Dagħ—Uch Bunar.
Oct. 1. Mandelia—Narasar.	„ 21. Uch Bunar—Kiuluk.
„ 2. Narasar—Euren—Kale—Chikur Yaila.	
„ 3. Attaulusu.	

ADDENDA.

IN a subsequent journey in the summer of 1896, W. R. Paton has been able to explore the northern slopes of the Latmos range from the Deniz Liman to ALABANDA.

By boat from Sirjin to its winter village, Sirjin-Kishla; the fortified site, or “Kastron,” on the north side of the Chamlik-Tépé, close to the shore of the Latmian gulf, is of late mediæval character. Thence northwards across the valley of Arap, at the west of the entrance of which lies MYUS, to Karaja-haik. To Karaja-haik a long valley comes down from Latmos, with the small village of Kispalân in its upper part. Kiepert’s map does not give this valley, and is consequently a little distorted in this neighbourhood.

Down to the main valley of the Mendere (*Mæander R.*), and then up that of the Kisir-Chai, which drains a considerable part of the northern slopes of Latmos. Both sides of this valley, as far up as the gorge below Akhlat, are thickly wooded with olives, from which the yield of oil must be considerable.

At Yevreli-Keui is an ancient site, with double terrace walls of massive masonry on the edge of a steep torrent bed, with an abundant spring below. Two late Greek inscriptions in the village, in the possession of the *hoja*, will be published in *Journ. Hell. Studies*, xvi. Nos. 37, 38. Rock-cut tombs with heavy capstones, of the characteristic Latmian type (*J. H. S.* xvi. forthcoming), were observed near

the road between Yevreli-Keui and Akhlat, and are said to be common on the hills in the neighbourhood.

Chavdar is situated at a height of 1900 feet on the watershed between the Kisir-Chai and Sari-Chai, and owns a large part of the upper slopes of Latmos, even beyond Arabarli Kalé and the highest peak. Only a small part of this is cultivated. The valuable pine-nut is the chief forest tree; and goats and bees are kept in large numbers, though the hives suffer much from the numerous bears. About an hour south-west of Chavdar are the remains of an older village, which, according to local tradition, was once populous. From near this village an old road can be traced into the neighbourhood of Arabarli Kalé, well paved, and skilfully conducted through very difficult country on terraces and bridges. A fragment probably of the same road passes the temple of Zews Stratios at Baghajik.* At Arabarli Kale is a mediæval ruin, apparently a fortified monastery.

At Teké-Kalé, on the highest point of the watershed between the Karpuzli-Chai and the China-Chai, is an ancient settlement with tombs of Latmian type, and an admirably preserved fort † visible from AMYZON, and probably built, like those at Attau-lu-su and Kurun-deré,‡ to serve as a signal station between TRALLES and MYLASA.

In this section the course of the river and the configuration of the country are wrongly given in Kiepert's map. Kiepert formerly identified Demirji Deresi with KOSKINIA (*Karte de Westl. Kleinasien*), but in his *Formæ Orbis*, 1895, he gives this site rightly to ALINDA, which he formerly placed at Kapraklar, near Mesevli. The last-named site should probably be identified with HYLARIMA; KOSKINIA should be looked for at or near Hazan Boghaz (not *Hassan* Boghaz, as in Kiepert's map), and the road thence to ALABANDA (Strabo, 587) in the tortuous valley from Hazan Boghaz, which joins the China-Chai about an hour north of ALABANDA.

At Demirji Deresi were found two inscribed bases (*J. H. S.*, xvi. Nos. 39, 40); another inscription, in the mosque, was inaccessible, as the *hoja* was away.§

JOURNEYS IN GOSHA AND BEYOND THE DESHEK WAMA (LAKE HARDINGE).

By CLIFFORD H. CRAUFURD.||

MR. CLIFFORD H. CRAUFURD, Acting Commissioner and Consul-General at Mombasa, has recently made seven journeys between Kismayu and Gosha on the Jub; he has ascended the river Jub four times to about 1° N., and has paid two visits to the Rer Hersi, a class of Ogaden Somal, who now occupy the country around the Aff Madu wells. The object of these visits was to persuade the natives to keep the peace, to do allegiance to the Queen, and to pay the usual tribute. In these respects he seems to have been completely successful. Incidentally he has made some interesting geographical discoveries. He is the first European, as far as we know, who has actually visited the Deshek Wama, a back-water lake connected with the lower Jub, first shown from native

* P. 52, above; cf. *J. H. S.*, xvi. 212.

† Plan and description are given in *J. H. S.*, xvi.

‡ P. 50, above; cf. *J. H. S.*, xvi. 213-214.

§ For the discussion on this paper see vol. viii. p. 472.

|| From a report kindly communicated to the Society by the Foreign Office.





MAP OF PART OF KARIA,

Based on Kiepert's Map with additions from the surveys of

MESS^{RS} W.R. PATON AND J.L. MYRES.

Scale 1:250,000 (394m=lin)

0 5 10

Ancient Sites in red
 ◻ fort, ◻ chambered tumulus, ◻ tombs, ● townsites, + temples.

